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ABSTRACT

The Utah, Colorado, Arizona, New Mexico-Rural Systemic Initiative (UCAN-RSI) supports systemic reform of mathematics, technology, and science education for rural students in its states, focusing on schools with high enrollments of American Indian and Hispanic students. This performance effectiveness review covers UCAN's progress during its second year (September 1996-August 1997) and up to 3 months into year 3. During year 2, UCAN accelerated its implementation of standards-based science and math curricula in the classroom, building capacity and intensifying its involvement with focus communities through a comprehensive professional development effort. UCAN worked with 102 focal schools during year 2 with at least 25 percent of math and science teachers at each school receiving at least 60 hours of professional development. These schools have a total enrollment of 29,024 students with 46 percent being American Indian and 34 percent being Hispanic. UCAN's efforts to track mathematics and science achievement data in its schools are briefly described. UCAN's six coalitions are described, each with a representative school or district and its performance indicators in 10 areas. The coalitions and their schools/districts are Southern Colorado Coalition (North Conejos School District); Ute Four Corners Coalition (Ignacio School District, Colorado); New Mexico County Coalition (Taos School District); New Mexico Tribal Coalition (Santa Clara Day School); Arizona Tribal Coalition (Salt River Pima-Maricopa Indian Community); and Navajo Nation Coalition (Tuba City Schools, Arizona). (SV)

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UTAH * COLORADO * ARIZONA * NEW MEXICO

UCAN
A FOUR-STATE
RURAL SYSTEMIC INITIATIVE

Year Two

Performance Effectiveness Review (PER)

December 9, 1997

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Dr. Vicente J. LLamas, Principal Investigator
Elizabeth A. Yost, Program Director

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RC 022812

INTRODUCTION

From the outset, UCAN believed and acted on the premise that the "community" as locally defined would be the best representative of the constituents that we wanted to serve. Operationally this means correctly identifying and working with the unit of change at the local or regional level. This is our guarantee that our efforts lead to sustainability of systemic reform.

Our approach has been to

- identify the system whether that be a school, district, community, tribal organization, or some other combination of these entities,
- identify and engage policy making bodies that impact the learning system, and
- identify further the individuals, groups or other organizations and resources that are needed for long term support of reform.

UCAN has found that the best resource management strategy is first identifying those resources that impact the perceived unit of change but are not yet themselves systemically oriented. We then engage them as true partners and owners of the reform effort supporting management, policy, and resource management changes that form the basis for long term commitment to reform. (See the first graphic on the following page for a graphical representation of this approach). It is these units of change in local or regional systems that represent our best chance of continuing the work we initiate, in preparing and nurturing these units of change. This view led us to focus on capacity building within schools/communities as an early strategy to ensure our goal of systemic sustainability.

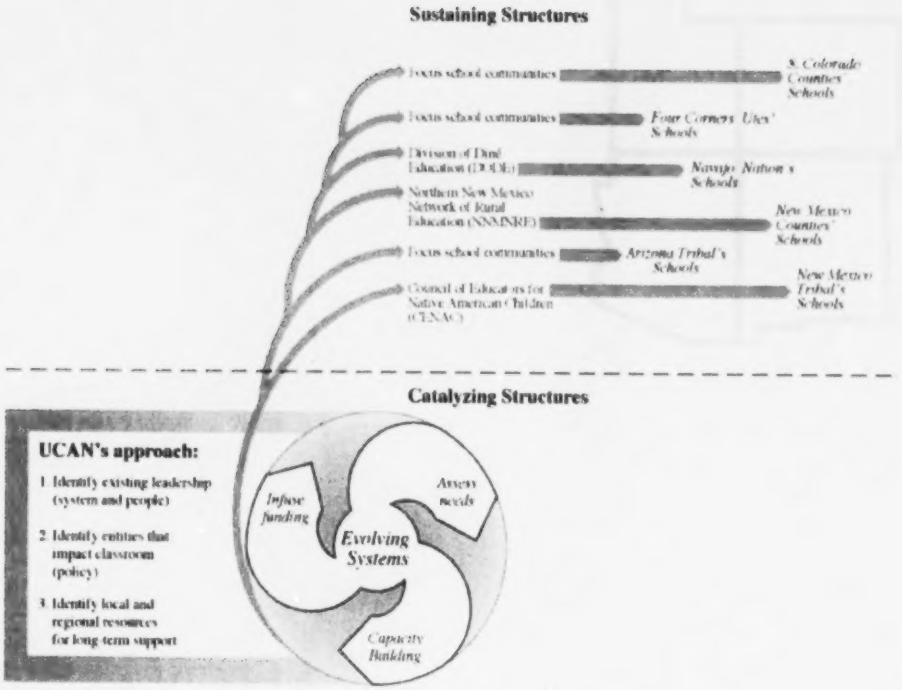
Critical to the goal of sustainability is appropriate resource convergence. We must be sure that our resource convergence supports not only our unit of change goals, but those of UCAN as well. In addition, the convergence must be guided such that these resources lead to a sustainable, unitary, standards-based, inquiry-driven curriculum and reform effort. The second graphic on the next page (See page i) shows the increases in resources during the first two years of operation.

UCAN'S PROGRESS

The following is based on the focus for UCAN's six coalitions during year 2 and up to three months into year 3. It was clear that although our first year efforts were critical in laying the foundation for long-term systemic effort and support, UCAN needed to move more quickly into the classroom than originally designed, or we would not have a significant impact in the area of student achievement by the end of our five year effort. Thus, our coalitions quickly moved forward in those communities who were ready and anxious to make changes at the classroom level and who are committed to implementing standards-based science and math curricula.

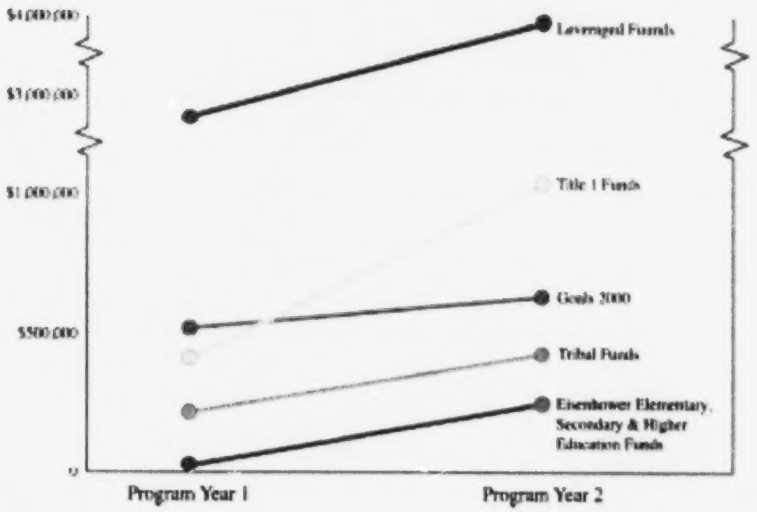
This attention to systemically identifying the unit of change, and the flexibility to change that unit as the reform agenda is successful, and stimulate resources to think and act systemically and support reform, leads to a safe, efficient way of scaling up. Central to this success has been our focus on capacity building and community engagement.

It is this capacity building that has allowed UCAN to accelerate its focus on the classroom during the second and third year. The following two graphics (See p. ii) indicate how UCAN intensified its involvement with its focus communities through a comprehensive professional development effort. Notice that although the number of administrators and teachers receiving professional development (PD) in support of standards-based curriculum implementation increased only slightly over year 1, the number of hours of PD has increased significantly. This ensures the necessary PD follow up needed for such comprehensive changes to be successful.


Sustaining Structures
Texas school communities
S. Colorado Counties Schools
Texas school communities
Four Corners Ute's Schools
Division of Dine Education (DODE)
Navajo Nation's Schools
Northern New Mexico Network of Rural Education (NNMNRE)
New Mexico Counties' Schools
Texas school communities
Arizona Tribal's Schools
Council of Educators for Native American Children (CENAC)
New Mexico Tribal's Schools
Catalyzing Structures
UCAN's approach:
1. Identify existing leadership (system and people)
2. Identify entities that impact classroom (policy)
3. Identify local and regional resources for long term support
Infuse funding
Assess needs
Evolving Systems
Capacity Building

Resource Convergence

Leveraged Funds for Program Year 1 (1995-96) and Program Year 2 (1996-97) and Selected Sources of Funds



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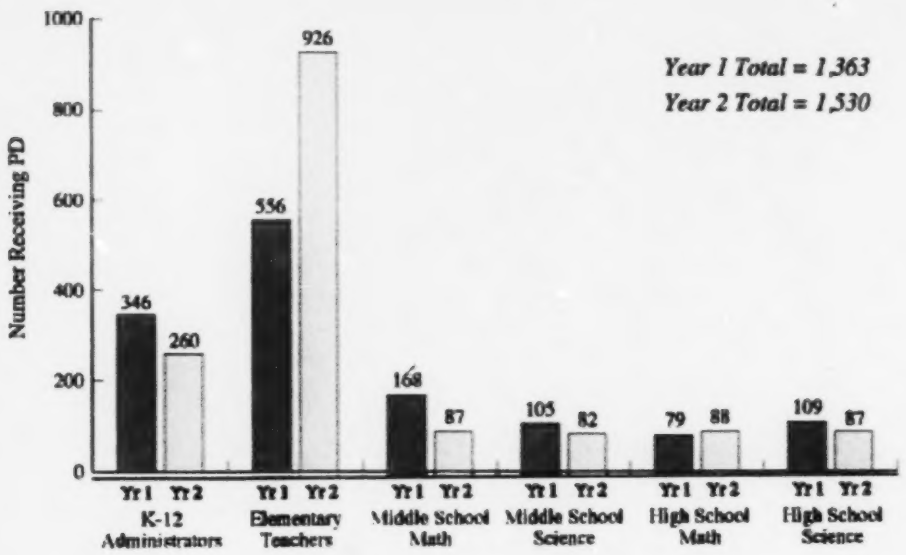
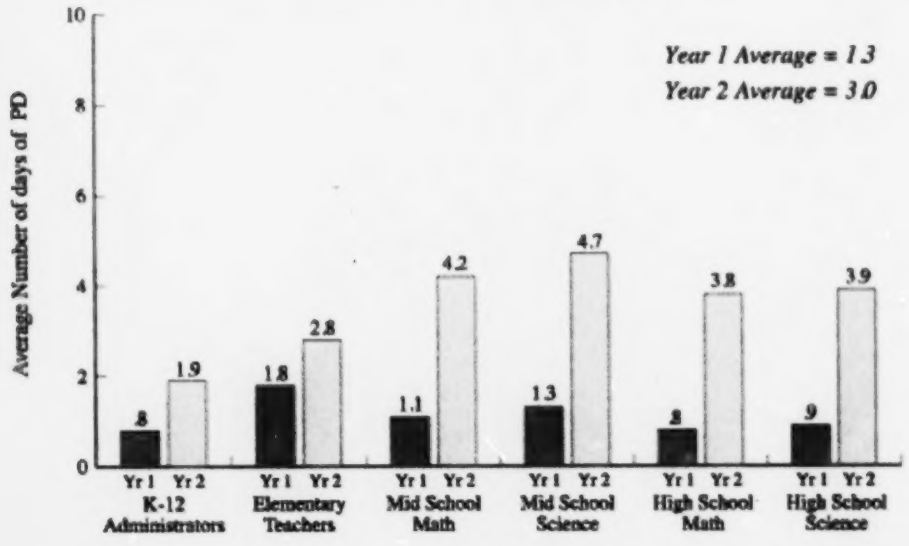
Professional Development
Program Year 1 (1995-96) and Program Year 2 (1996-97)

Number of Administrators and Teachers Receiving Professional Development



Average Number of Days of Professional Development per Administrators and Teachers



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STUDENT & TEACHER IMPACT

UCAN worked with 102 focal schools during year 2 with at least 25% of math and science teachers at each school receiving 60 hours or more of professional development or where UCAN provided 20 person hours or more of on-site services. These schools have a total enrollment of 29,024 with 46% being Native American and 34% being Hispanic. Figure 1 on the next page (page iii) shows the number of students enrolled in focal schools during year 2, as well as the enrollment in year 1 focal schools. Across the two program years UCAN has involved 128 schools with 38,035 students or 24% of all UCAN students.

These 102 year two focal schools have 1,048 elementary, 110 secondary math and 104 secondary science teachers on their faculties. Figures 2 on the next page (page iii) shows the total number of elementary, math and science secondary teachers in these focal schools, as well as the number of teachers in year 1 focal schools.

STUDENT ACHIEVEMENT

The UCAN RSI recognizes the importance of significantly raising the overall achievement of its students. Therefore, UCAN is using a variety of data and information resources to help illustrate its efforts in math and science systemic reform. Much of this data is being analyzed by the UCAN external evaluators so that UCAN schools can see where their strengths and barriers exist. Reports are being transmitted to coalitions, who in turn, share them with their districts/agencies for effective planning and policy recommendations. For example, gender, ethnicity and grade-by-grade data helps the schools focus on their educational needs in a way that has been unavailable to them in the past.

UCAN is tracking the number, grade level, ethnicity, gender, and completion rates of students enrolling in math and science courses offered in UCAN secondary schools. These statistics have not historically been kept by UCAN schools which has made them difficult to collect. This past year 33% (40) of UCAN high schools serving 13,945 students reported these data to UCAN. In order to assist schools in using these kinds of data for decision making, UCAN is distributing a course report to all 120 high schools which compares UCAN data to that available nationally from the Council of Chief State School Officers. The table on the next page (page iii) is an example of the kind of information included in the report to schools.

One of the difficulties in assessing achievement in rural schools has to do with manpower resources that are quite volatile. The first graph on page iv shows the number of students in UCAN eligible schools who have taken AP math or science exams. Notice that over a three year period the percent variation is over 20%. This occurred when AP trained teachers left rural schools and could not be replaced. It also exhibits the rural difficulty of being able to offer such courses annually.

Because Utah, Arizona and Colorado have recently changed their assessment system and therefore have a new baseline, only New Mexico continues to have test results that can be related to our pre-implementation year. This is given in a table on page iv and based on ITBS scores statewide, UCAN-wide, and by UCAN focal schools.

UNITS OF CHANGE & THEIR EVOLUTION

UCAN, in its first two years of operation, learned the most effective ways of working with our complex universe of multi-jurisdictional, multicultural/multilingual, and isolated rural communities. Following the sustainability model described above in the Introduction, we identified our units of change and supported their evolution from Non-Systemic/A Systemic entities, to those that are broader based, systemically focused, and accountable. The Unit of Change is further defined in the next section wherein each coalition discusses in detail (in terms of the Indicators) one of their focus school/communities and its corresponding unit of change. Their story represents UCAN's approach to systemic reform that is sustainable.

Figure 1

UCAN Focal Schools Student Enrollment
September 1, 1995 to August 31, 1997

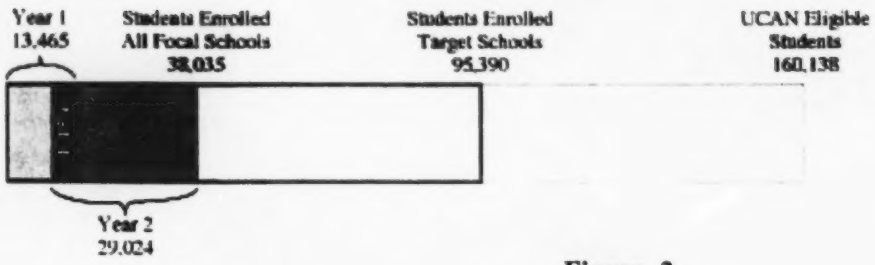

Figure 2

Number of Elementary, Math & Science Teachers
in UCAN Focal Schools
September 1, 1995 to August 31, 1997

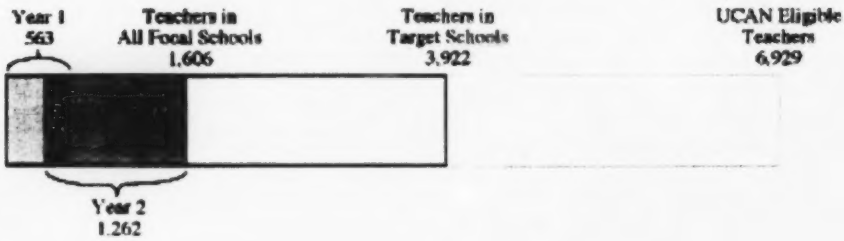

Figure 3

UCAN Enrollment Percentages in Selected Science Courses in the Fall, 1996 and 1994 National Course Enrollment Percentages

GRADES 9-12 --- Science

COURSES		General Science	Biology Year 1	Chemistry Year 1	Physics Year 1
% of grade 9-12	UCAN	2%	16%	8%	3%
Students taking course	Nationally	6%	23%	12%	5%

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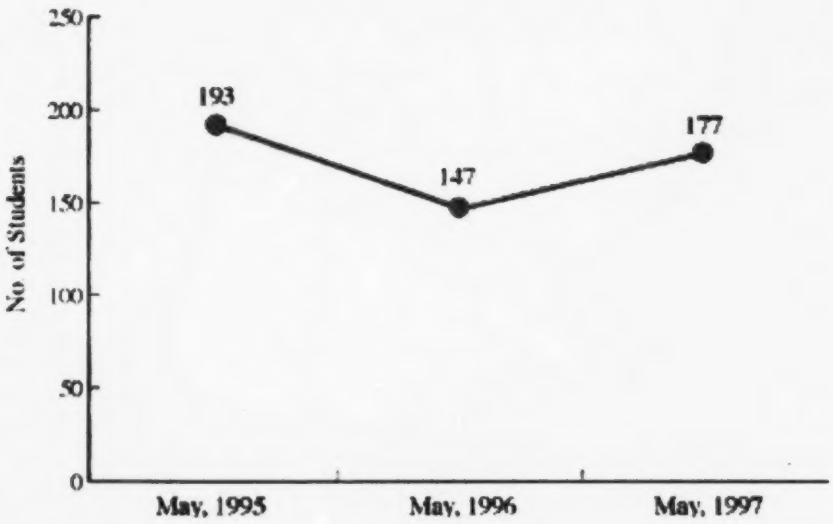
Advanced Placement (AP)

Number of Students Taking AP – Total Math & Science Exams in UCAN Eligible Schools



UCAN RSI ITBS DATA
New Mexico Public Schools
Statewide, UCAN-wide and UCAN High Activity Schools*

Percent of New Mexico public schools that increased the number of students scoring above the 50th National Percentile Rank between 1994-95 and 1996-97. Table presents the percent of schools who increased in both math and science, in math only and in science only.

Percent of **Schools** that increased the number of students scoring at or above the 50th National Percentile Rank between 1994-95 and 1996-97			
	Increased in **Math & Science**	Increased in **Math Only**	Increased in **Science Only**
Statewide N=557 Schools	29%	13%	18%
NM UCAN-wide N= 150 Schools	31%	14%	18%
NM UCAN High Activity Schools N=54 Schools	32%	15%	20%

*UCAN High Activity Schools are schools in which UCAN has focused extensive time and resources to move the school toward systemic reform of math and science education.

INDICATOR DETAIL FOR UCAN COALITIONS

A. Southern Colorado Coalition - North Conejos School District

The Southern Colorado Coalition of UCAN/RSI consists of six counties in Colorado. Four of these counties are in the San Luis Valley located in the south central part of Colorado while the other two districts are in the Arkansas Valley to the east of the Rocky Mountains. Conejos County, in the San Luis Valley, is ranked as one of the poorest in the State with an average household income of $11,162. The North Conejos School District has 1,226 students with 60% on a Free or Reduced Lunch Program. Approximately 50% of the students are Hispanic.

The North Conejos School District began their development and implementation of curriculum/standards alignment in math and science during the 1994-95 school year. The staff studied the curriculum at each grade level, compared them to the national standards, identified gaps and redundancies, and developed their own standards. Professional development needs were identified for implementation, and the process of providing this for the staff began in 1996. UCAN facilitated workshops for North Conejos, Centennial and Antonito School Districts to draft a scope and sequence curriculum/standards document for math and science. This has provided the framework for all future decisions regarding curriculum, assessment and professional development. The development of a technology lab at Centauri H. S. was initiated in 1996.

In 1997, a standards-based curriculum implementation plan was initiated. La Jara Elementary and Manassa Elementary (k-5) integrated science with hands-on experiences. Centauri Middle School (6-8) moved from a departmentalized curriculum to an integrated activity based program. Centauri High School (9-12) added Physics, Chemistry II, Advanced Biology and Earth Science to the curriculum. Hands-on and constructivist activities became an integral part of the implementation process at all levels. North Conejos developed a spiral curriculum k-12 to fit their needs, as packaged commercial curriculums did not meet their requirements. UCAN and Title 1 funds supported these efforts. Professional development continues for all staff members. Plans are in place for an annual review of the Curriculum/Standards alignment. Funding and resources from UCAN RSI, CONNECT-SSI, the District, Goals 2000, Title 1, School-to-Career, Eisenhower, Chapter II, local Government Agencies, and local business and industry are currently being used to scale up to other schools within the two valleys.

Indicators for North Conejos School District

1. Student Impact: All 1226 students (k-12) are being impacted with the new spiraling curriculum based on local, state and national standards. In 1991, 7 students were enrolled in Trigonometry, 7 in Physics and 15 in Chemistry. Calculus was not offered. In 1996-97, two Calculus classes were offered with 20 students each, an Advanced Biology and a Earth Science, and an Applied Technology class (Physics) course were added in 1997-98. Students wrote a proposal to the Colorado Department of Education and were funded with $5,000 to build a greenhouse that offers the students and teachers a real world example and laboratory for science, math, and technology.

2. Teacher Impact: All the k-12 teachers are involved with the new curriculum and assessment processes. In 1995, 23 teachers attended workshops; in 1996 this increased to 58; and in 1997 professional development workshops had over 180 teachers in attendance. A five member team (1 H.S. Math, 1 M.S. Math and Science, 2 Elementary teachers and a community member) are members of the curriculum implementation team that are being trained by the Education Trust. Two staff members (1 H.S. Math and 1 M.S. science) have been trained as trainers to work with all teachers in the district. Follow up training is being offered as an ongoing support for the implementation process.

3. Policy Changes: The middle school has moved from a departmentalized curriculum to an integrated/activity based program. Hands-on and constructivist activities have become an integral part of the implementation

process at all levels. The District has adopted the model developed for math and science reform for reading, writing, history and geography. The District also provides release days for the teachers to work on curriculum. A plan is in place to review the curriculum and assessment annually. All k-12 teachers are required to include a Standards Alignment Plan along with their Lesson Plans.

4. Resource Changes: Goals 2000, Title 1, School-to-Career, Eisenhower, Chapter II and District funds have been pooled to provide professional development for the new curriculum. The District has also invested $20,000 in middle school curriculum this past year. During the 1997 spring semester, 15 students were concurrently enrolled with Trinidad State Jr. College. Adams State College provides students to work with the high school students in the greenhouse three times per week. The US Forest Service and Bureau of Land Management are an integral part of the new curriculum activities.

5. Management Changes: A District Accountability Committee (DAC) as well as Building Accountability Committees have been formed to bring the community into the operations of the schools. The district provides the administrative support required for these systemic reform efforts. The DAC is currently working on Preschool Standards for Parents to prepare students for school.

6. Data Utilization: After the State suspended their Statewide Assessment program, North Conejos adopted the McGraw Hill-Terra Nova Tests. Students in grades 3, 5, 7, 9, and 10 were given the test in the spring of 1997 to obtain baseline data. The results of these tests are currently being used by teachers to correlate grades and student performance. They are also being used in parent teacher meetings to help identify individual student needs and to develop individual development plans.

7a. Standards-Based Curriculum: A k-12 spiral curriculum was developed after a review of existing curriculum was conducted to identify gaps and redundances.Then a scope and sequence format curriculum was developed to provide a k-12 program based of local, state, and national standards. An annual review of curriculum and standards has been implemented.

7b. Hands-on, Inquiry-Based Instructions: Professional development has increased from 23 teachers in 1994-95 to over 180 in 1996-97. District has provided release days for work on curriculum. Ongoing training utilizing UCAN's Education Trust training programs (that are designed to train teachers and administrators in the process of curricular alignment with standards) are in progress. Each teacher (k-12) must include a Standards Alignment Plan along with their lessons plans. Hands-on and constructivist activities have become integral to the implementation process at all levels.

7c. Assessment: See Indicator 6 above.

7d. Student Support: Saturday school is available for middle school students to help them in the transition from the previous curriculum to the standards-based curriculum. Peer tutoring is available for both middle school and high school students. The high school provides interns to work with both elementary schools.

7e. Use of Environments and Resources Outside of Schools: Adams State College provides students to assist with the greenhouse project three times a week. Trinidad State Junior College provides programs for students who want dual credit leading to various professional certification programs. The US Forest Service and BLM provides programs that take the students into the field on a regular basis.

7f. Student-Teacher-Curriculum Interaction: Middle school students wrote a $5,000 proposal to the Colorado Department of Education to build a greenhouse. The North Conejos students now work with students from Adams State College to grow herbs in the green house. They then take this into the community and sell their products in the local City Market. Each student keeps a science lab notebook which is reviewed with the

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teachers on a regular basis. Students are given the opportunity to travel with the teacher to make presentations to community groups.

7g. System Environment/Context: The change to the block system supports the implementation of the new standards-based curriculum. Shared resources across districts allow students to take advanced courses before graduation as well as potentially earning Associate of Arts degrees in some technical and professional areas.

8. Student Performance: The McGraw-Hill Terra-Nova test has been administered to the 3, 5, 7, 9 and 10 grade students in 1997 to obtain baseline data. The data from these tests are currently being used to correlate with the local grading system. Student enrollment in physics, chemistry and trigonometry has increased from 7 in 1991 -- calculus was not offered -- to two calculus classes of 20 students each. New courses include an Advanced Biology, an Applied Biology, an Earth Science and an Applied Technology class in 1997.

9. Partnerships: New Horizons, a community organization, has been formed to provide adult education opportunities. Partnerships have been formed with over 48 local business and industries ranging from the Alligator Farm to Valley Electric. Many have begun to integrate their resources with those of the school as a means of supporting reform for the long term.

10. The Unit of Change is the school district and the community it serves. Policies have been changed to incorporate a revised spiral curriculum K-12. Preschool Standards for Parents are being developed and New Horizons provides opportunities for Adult Education. The District provides release time for their teachers to develop curriculum and to attend professional development opportunities that support the reform effort. Partnerships have been formed with the limited number of businesses in the community, with Government Agencies, Institutions of Higher Education, CONNECT-SSI, School-to-Career, Title 1, Eisenhower and Chapter II. Curriculum has been aligned with local, state and national standards. Teachers create a Standards Alignment Plan along with their Lesson Plans. The McGraw-Hill Terra-Nova testing program has been adopted to develop baseline data. Additional science and math classes have been added to meet the demands and high expectations of the students. Hands-on inquiry based activities are integral to the curriculum at all levels. Accountability Committees have been formed at the District and at the Building Level to keep the community engaged in the operations of the District.

B. Ute Four Corners Coalition - Ignacio School District (ISD)

The Ute Four Corners Coalition serves the Southern Ute Tribe, Ignacio, CO, the Ute Mountain Ute Tribe, Towaoc, CO, the Northern Ute Tribe, Roosevelt, UT, and the public school districts that their children attend. In all three areas, UCAN/UFCC has been helping to open communications channels between the tribes and the districts and between the tribes themselves. The three tribes have now come together to apply for 501 (c)(3) status to continue the efforts started by UCAN.

Ignacio, CO, city population of 720, is headquarters for the Southern Ute Indian Tribe. The Tribe consists of approximately 1,317 members on a reservation of 310,000 acres. Ignacio and the surrounding community is 31% Native American, 21% Hispanic and 48% Caucasian ISD is a public school system with a 1997 enrollment of 1,048. During the past year, the District developed a strategic plan through the year 2000 with input from the overall community including the Southern Ute Tribe. Four of the six goals developed support standards, experiential leaning, technology in education and opportunities for all students to get an accelerated learning program in every discipline at every grade/level. Strategies to obtain these goals were agreed upon and committees were formed to work on objectives and action plans.

Indicators for the Ignacio School District (ISD)

1. Student Impact: Math enrollment has increased from 110 in 1995 to 166 in 1997 (from 17 to 35 Native Americans). Science enrollment has increased from 85 in 1995 to 158 in 1997 (from 17 to 30 Native

Americans). The Native Americans in 5th grade math performed at the 33rd percentile in 1995. The same students performed at the 42nd percentile in the 7th grade two years later. To increase the course offerings in these small rural communities, ISD in conjunction with neighboring Bayfield School District (11 miles away), allows students to enroll in courses at either school. Buses run between the two towns each period. The District and Pueblo Community College initiated a 5th year program so students in the 11th grade can begin taking college level courses and can continue to take college courses at the high school one year after graduation. It is possible to leave Ignacio High School with an Associative Arts Degree.

2. Teacher Impact: ISD, AMOCO Gas & Oil, and AIMS (Adventures in Integrated Math and Science) developed the Celebrating Science Curriculum and trained 100% (8) of the 4th and 5th grade teachers. The Intermediate School is now an AIMS-based school. The Tribe has signed an agreement with the College of Santa Fe, NM, to provide a local Masters Degree Program in Bilingual Education with an emphasis on at-risk students. The program currently has 7 Ute Tribal members, four other Native Americans and 11 teachers and aides in the district. In the 55 professional development opportunities on standards, alignment and assessment offered over the past 2 years, a total of 335 teachers participated.

3. Policy Changes: After review by local and district accountability committees (parents, teachers and administrators), the Ignacio School Board set policy that mandates the alignment of the curriculum with the Colorado State Content Standards. Science and math curricula were the first to be aligned.The District has changed graduation requirements to three years of math, one of which must be algebra, and three years of science. A seven period school day has been changed to a four period block schedule to allow for more hands-on and group learning opportunities in classrooms. The elementary school has increased their inservice days from one to four.

4. Resource Changes: As a result of UCAN and UFCC commitment to improving education for all children, the District invested $600,000 in technology infrastructure and maintains a $150,000 annual budget for technology that is made available for community use. All Eisenhower Funds are pooled and used by the San Juan BOCES (Board of Cooperative Educational Services) for professional development that support standards-based curriculum. Additional math and science teachers (2) have been added to meet the demand of increased enrollment.

5. Management Changes: A curriculum and technology director position and a technician to maintain the computer equipment have been added to the staff to work with the classroom teachers. One elementary teacher has been designated as lead science teacher and is responsible for helping teachers meet the standards and benchmarks. Local and district level accountability committees made up of parents, teachers, students and administrators are charged with ensuring that the revised curriculum is aligned with standards and that consolidated school plans are followed.

6. Data Utilization: Metropolitan Achievement Test and teacher developed tests with portfolios are used for assessment. Training in the design of local assessments is underway this year. The RMC Research Corporation conducted a reading audit for the district and found many inconsistencies and the reading scores low. As a result, the Tribe funded a training program for teachers at both the District and at the Tribal Education Department as well as parents in the Spalding Reading Program and the Rebecca Sitton Spelling Program. The dropout rate for Native Americans decreased from 12.3% in 1995 to 3.3% in 1997. The overall district decreased from 5.2% to 4%.

7a. Standards-based Curriculum: After introduction to the standards and benchmarks, teachers documented the classroom activities against the standards at each grade level. Science and math curricula were the first to be aligned. Consultants from Ft Lewis College are reviewing for grade level appropriateness, articulation and curricular gaps.The Intermediate School has adopted the AIMS program. To support the experiential hands-on

based learning, the middle school and the high school have adopted as part of their curriculum Applied Math (which is Pre-Algebra and Algebra and can be taken in the seventh and eighth grades), Applied Biology and Chemistry (required in the 9th grade) and Principles of Technology.

7b. Hands-on Inquiry Based Instruction : AMOCO and LaPlata Electric funded the purchase of calculator-based lab units (probes used for data collection with TI-83 calculators and with PC interface). UCAN provided the training for these labs. The AIMS Curriculum in the Intermediate School and the Applied Curriculum in the Middle School and the High School are all hands-on inquiry based programs.

7c. Assessment: The San Juan BOCES, with pooled Eisenhower funds, held an Assessment Academy during the 95/96 school year. A math and science teacher from each school (8) and the four principals attended. Metropolitan Achievement Test and teacher developed tests including portfolios are used for assessment. Training in the design of local assessments, including portfolios, is underway this year. This effort is facilitated by the curriculum and technology director, a new full time position created for this effort.

7d. Student Support: The Tribe in conjunction with the District produce a "Cradle to Grave" learning environment by providing a pre- and postnatal program to ensure that tribal members have the resources to support their children's cognitive and motor skills development from before birth. They partner with the School District to provide a learning environment throughout the k-12 years and provide post secondary opportunities not only for their members but for the community. To prepare the students for school, the Tribe has initiated a Montessori curriculum, a Family Math and a Math Their Way program in their Head Start Program. The Tribe supports a Read Write Now program and encourages parents to read with their children. The Tribe developed the Educational Excellence Program (grade 3 through the 4th year of college) that is an extended School-to-Career program.

7e. Use of Environments and Resources Outside of Schools: Pueblo Community College, the Southern Ute Indian Tribe, the Colorado Division of Wildlife, the EPA and ISD are combining an existing Environmental Science Class with a new Field Techniques and Science Technologies class. Students become a research team, aided and instructed by a science teacher, a technology teacher and tribal and community environmental personnel. Critical thinking, decision making, and technology are integrated with course content as students investigate local river systems. This is a field project to teach environmental issues, ethics, research techniques, technologies, team work communication skills and environmental career options in an applied hands-on manner.

7f. Student-Teacher-Curriculum Interaction: This fall, four 5th, 6th, and 7th grade teachers along with 20 of their students attended a three day workshop in neighboring Bayfield on Oceanography/Standards conducted by the University of Colorado. The Environmental Science and Field Techniques and Science Technologies classes have been developed by teachers, students and tribal/community environmental personnel. The new block scheduling supports greater hands-on work by the students and teachers.

7g. System Environment/Context: Community and district-wide integration of technology to support standards-based education has been supported by a comprehensive three year technology plan. The seven period day has been changed to a four period block. The Intermediate School is now an Integrated Math/Science based school.

8. Student Performance: The dropout rate for Native Americans dropped from 12.3% in 1995 to 3.3% in 1997. The overall district dropped from 5.2% to 4%. Twenty students and ten community members are currently enrolled in college level courses taught at Ignacio or Bayfield under the 5th year program. The Educational Excellence Program has 42 positions filled this fall.

9. Partnerships: The Tribal Council and the School Board hold monthly dinner meetings to keep the communications channels open. District and Building Level Accountability Committees actively participate in setting direction and policy. Businesses such as AMOCO Gas & Oil and LaPlata Electric have been integral to the development of curriculum and providing resources for lab equipment, access to their professionals and field trips. Ft Lewis College and Pueblo Community College have ongoing programs in place to supplement the resources of the District. Interdistrict agreements with Bayfield increase the courses that can be offered. Governmental Agencies such as the Colorado Division of Wildlife and the Environmental Protection Agency provide resources to expand the classroom.

10. Unit of Change: The unit of change is the district/community that serves the Southern Ute Indian Tribe students. The standards-based and aligned curriculum such as AIMS in the intermediate school and the Applied Math, Applied Chemistry/Biology and Applied Physics have been adopted to provide more hands-on inquiry activities. Policies such as the block scheduling, alignment with State Content Standards, the increased math and science requirements for graduation and the 5th Year Program have been implemented. Resources of the Tribe, the Division of Wildlife, School-to-Career and the EPA have been incorporated into the curriculum. Partnerships with Pueblo Community College, Ft. Lewis College, Bayfield School District, the San Juan BOCES and the College of Santa Fe provide additional opportunities for the students. Opening the school to the community is increasing the understanding and the support of the community. To date over 817 school staff and community members have attended a UCAN initiated workshop (482 of these were community members) to provide professional development needed to incorporate and sustain this reform effort.

C. New Mexico County Coalition - Taos School District

The original unit of change in the New Mexico County Coalition (NMC) was the already existing Northern NM Network for Rural Education (NNMNRE) that is made up of the superintendents and directors of instruction for 23 of 89 districts in New Mexico. Most (17) of the districts are eligible RSI districts and those who were not part of the Network were included as ad hoc members through a cluster system. This policy making body formed the basis for substantial systemic reform during the first two years of the UCAN RSI. Working closely with the State Department of Education (SDE) through its Educational Plan for Students Success (EPSS), the NMC, using the Shades of Change planning process, worked closely with districts to develop high quality, standards-based curriculum reform plans. With a new accountability process being piloted in 1/3 of the NMC districts, the SDE is supporting its implementation as a potential statewide EPSS accountability system. Thus far the NMC has impacted 24 districts serving approximately 52,000 in 170 schools.

The EPSS process is now considered a compact between school/communities and the State Department of Education which will drive accreditation decisions and ultimately budget appropriations. The locus of accountability is the classroom and school site, now a legislative requirement enforced by the State Board of Education. Many of these policy changes affecting school accountability have been influenced by UCAN/Network district activities. Accountability for results at the local level is now much more predominant in EPSS processes. The work of the Coalition has given districts a much better grasp of how schools can be accountable to their communities and is evidenced by the use of better student data to drive decisions.

As UCAN and the NMC began transitioning from capacity building and policy support development to implementing standards in the classroom, the unit of change within the NMC moved back into districts, schools and communities who are committed to fulfill their EPSS efforts. The Network has become a major force in promulgating change within its targeted districts/communities as well as the SDE and state legislature. In addition, the Network has been highly successful in bringing in new resources through improved grantsmanship (over $1.5 million in two years) and obtaining access and utilizing distance learning to support the rural schools in student, teacher and administrator needs.

Indicators for Taos Municipal School District

The Taos Municipal School District in Taos County is in north central New Mexico. The county represents a rural population of 25,000 where Spanish, Tiwa and Apache dialects are in common use by nearly 75% of the population. Approximately 78% of the student population come from homes where a language other than English is spoken. The students come from an economically depressed rural area where resources and experiences are limited, including exposure to standard English. The District has approximately 3400 students: 69% are Hispanic, 24% are Anglo, 6% are Native American, and 1% are Asian and African American.

1. Student Impact: Approximately 50% of the student body completed advanced math courses through Trigonometry and 30% of that group completed Advanced Placement Calculus. Approximately 80% completed science courses through Chemistry. Participation rates by ethnicity in the upper level courses include 48% Hispanic (district population, 69%), 48% Anglo (24%) and 4% Native American (6%). Student demand for advanced courses in science and mathematics has resulted in increases in course offerings. Advanced Placement courses has increased from one section of biology in 1992 to the addition of AP courses in calculus, 2 sections in Physics, and Chemistry. The district plans to add environmental science and statistics in 1998. Graduation rates have increased for the district from 90.5% to 91.2%. Graduate plans to enter post secondary institutions reflect an increase of 6%, from 80% in 1996 to 86% in 1997.

2. Teacher Impact: All teachers in the district are involved in curriculum reform through the process of aligning curriculum with state adopted standards. The district with the support of New Mexico County Coalition (NMC), has initiated professional development initiatives designed to provide administrators and teachers the skills necessary to implement the alignment in a meaningful way that results in enhanced student achievement. The district designed a process that empowered cross-disciplinary teams made up of elementary, middle, and high school teachers. By design, the process included all district staff. Two members of each team were sent to the NMC Principals' Institute which focused on what was necessary for standards based instruction to become a reality in the classroom. The district has included a standards for teacher competencies which will be led initially by the Math and Science Content Committee. The committee will identify the content knowledge needed by teachers at each grade level in order to deliver the standards based curriculum. A procedure will then be developed to correct any teacher content deficiencies. The committee's role is to acquire input from math and science teachers throughout the Coalition.

3. Policy Changes: District leadership is continually making adjustments in policy and administrative support as needs are identified and justified. Examples include sweep testing all students in all grades; increase access to AP courses; concurrent enrollment agreement with UNM-Taos which allows AP courses with a grade of C or better to count as college credit regardless of AP test scores; increased district budget support for all professional development from $25,000 in 1996-97 to $50,000 in 1997-98. In addition Title II funding ($20,000) has been focused on math and science. The district adopted block scheduling effective fall 1997, allowing students additional hands-on class time. Title 1 Schoolwide designation approved Taos Middle School utilization of Title I resources across the curriculum, including science. Most recently, a NMC facilitated meeting initiated articulation among educational service providers within the county. Specifically this addresses coordination for students in the BIA schools as they migrate between the Taos Pueblo Day School and the public schools.

4. Resource Changes: The Title I School Wide designation at the middle school allows the district to address resources in science as well as math and language arts and will support the classroom implementation of skills gained in the inter/intra cross disciplinary workshops. Increased funding for professional development and maintaining Title II focus on math and science also supports classroom implementation of skills gained from workshops. This will also facilitate the completion of the alignment process, including curriculum development and assessment. In addition to access to computer labs, every teacher now has access to a computer in the classroom. The district's general fund now supports a technology coordinator and school-based laboratory coordinators for trouble shooting and assisting in integrating technology in daily instruction in all disciplines and to provide technical assistance to the teachers.

5. Management Changes: Administrative support for systemic reform is provided by the Director of Instruction. Teacher support is provided by the content coordinators who are classroom teachers. The content coordinators assure that revised curriculum is aligned with state content standards and benchmarks, provide inservice for teachers, and assist teachers with delivery strategies.

6. Data Utilization: The district believes in involving parents in all aspects of their children's education. The district, through parent teacher conferences and the parent advisory committees, utilizes data in making decisions about their children. An important part of the data includes an annual achievement assessment, teacher grades, and discussion of student interests/capabilities. The state and district have changed the achievement assessment and the district will continue to administer it on an annual basis. The CTB-McGraw Hill is more closely aligned with content standards and benchmarks and it contains items that will allow for criteria referencing. The district sent teams to a UCAN conference for training on how to work with students at risk. This included the role of student databases in identification of students' needs as well as specific strategies to address this population. Each team developed strategies to address the needs within their own district for inclusion in their EPSS.

7a. Standards-Based Curriculum: The districts expects to complete its initial alignment of curriculum with content standards and benchmarks by March 1998 in the core areas including math and science. Extensive professional development has been provided to teachers and administrators as the entire staff is involved.

7b. Hands on Inquiry-Based Instruction: The district with NMC has provided professional development and the district has aligned its resources to encourage the purchase of materials as well as inservice toward classroom implementation.

7c. Assessment: State expectations for the implementation of a curriculum aligned with standards includes assessment. The district currently uses standardized test scores, teacher grades and knowledge teachers have of individual students to assess student achievement and will continue to look at alternative measures. The district with NMC will provide inservice during the 1997-98 year to address alternative assessments and their use in improving instructional programs.

7d. Student Support: The district provides tutoring support in an after school program at least one day per week in collaboration with a community based service learning program, Rocky Mountain Youth Corp. Adult volunteer in the Community Education Program serve as mentors to the elementary students. District support continues to support student participation in local, regional, state, national and international science fairs and New Mexico MESA.

7e. Use of Environment and Resources Outside Schools: Joint initiatives have been initiated to enhance education programs in the schools through the rich tri-cultural heritage of the region and its growing reputation as an art and cultural center. These include the concurrent enrollment with UNM-Taos, tutoring and mentoring provided by the Rocky Mountain Youth Corp., mentor training provided by the New Mexico School-Community Education Association, after school programs provided by the city and elementary level programs provided by the Millicent Rogers Museum.

8. Student Performance: Student Achievement data indicates improvement as indicated by the increasing pass rate on the first attempt on the New Mexico High School Exam administered at the 10th grade level. Over the past 2 years the rate increased from 84.7% to 90.9%. The drop out rate has also improved from 7.5% to 5.9%. In addition, ITBS math scores for 5th grade students rose from the 41st (1994-5) to the 44th percentile (1996-7). During that same time period, 8th grade math scores rose from 41st to 47th percentile and the 8th grade science, from 44th to 55th percentile. Math ITBS showed continual improvement for grades 10, 11 and 12 from 1994 through 1997. Tenth grade students rose from 3rd to 48th percentile. Eleventh graders went from 35th to 55th and seniors went from 34th to 63rd percentiles.

9. Partnerships: The emerging relationship with the Taos Day School and tribal community is impacting the design of a mutual, standards-based instructional system to serve all children, regardless of governmental affiliation. Another strong partner is La Plaza, a non-profit corporation, assisting Taos with its access to the Internet. Much technical assistance has been rendered, as well as some assistance with purchase of equipment. The area post-secondary institutions, including NM Highland University, University of NM and Northern New Mexico Community College are assisting with teacher professional development and courses for high school students. In addition, summer programs for students are being provided. Section 7-E provides the names of other partners.

10. The unit of change is the district administrative and teaching staff and the district's accountability committee. The recent agreement between the public and BIA schools in Taos may evolve into a broader based unit of change as they begin the articulation process. Over the past years, significant strides have been made by Taos Municipal Schools through the use of the EPSS process to reform education. The use of quality data to make instructional decisions has been initiated. The math and science reform process is viewed as part of an overall process to improve student outcomes. Accountability for results at the local level is much more a part of the conversation, supported by recent policy decisions at the state level to use individual school units as the focus for accountability. There is a definite commitment to serve all students, recognizing their unique cultural and linguistic differences, that includes the beginnings of a partnership to bring the tribal and public school systems into an effective working relationship. As the RSI initiative continues to develop in close coordination with the systemic reform efforts of the districts, additional improved in student achievement is anticipated.

D. New Mexico Tribal Coalition - Santa Clara Day School

The New Mexico Tribal Coalition (NMT) originally identified their units of change as the BIA funded reservation schools and local tribal education organizations and/or leaders. The whole school, including teaching staff, support staff, and administrators, with tribal and other pueblo representatives were involved in capacity building and professional development so that by the end of year two, they were ready to move towards implementing standards in the classroom. Meanwhile, the Northern and Southern BIA Pueblo Education Agencies, who historically have been working independently since the 1950's, were brought together by NMT to address reform at a larger level, and at the same time to bring into the partnership those Pueblos who did not have their own reservation schools.

The result is a supra-organization, CENAC (Council of Educators for Native American Children), that now has the two BIA Education Agency Superintendents and their reservation school principals (there are 12 schools within the 19 Pueblos) working towards improving education for all children.

CENAC has aggressively pursued funding to implement standards into all Pueblo schools. Two recent grants, a $200,000 BIA Goals 2000 grant and a state grant of $35,000 are being shared across all CENAC schools to support the implementation of bilingual, culturally relevant, and standards-based SMT curriculum. CENAC is the evolutionary result of NMT's and UCAN's approach to reform. This entity has the authority and now the capacity and commitment to ensure long term reform that is now addressing all areas of the educational experience for all students.

A significant accomplishment has been the coalition wide movement towards bringing classroom curriculum and assessment in alignment with either national or state science and mathematics standards. Eighty teachers and 7 administrators from the CENAC schools have received training on how to align curriculum and assessment with standards. These teachers are now working at their local school level to direct needed curriculum and assessment modifications. They are also working as trainers for other teachers at the schools who did not participate in the initial training sessions. Implementation was initiated at the end of program year two.

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As a result of this and other professional development activities sponsored by UCAN/NMTC, 2,130 students (k-8) are receiving hands-on, inquiry based instruction in math and science and 540 high school students will be receiving instruction based on science and math standards. 128 out of 247 CENAC school teachers received at least 16 hours of professional development on the use of either Center for Hands on Learning (CHOL) or FOSS science and an assortment of math kit materials. Teachers in all 12 CENAC schools are implementing alternative assessment tools.

All NPA and SPA School boards and Tribes have supported the reform effort by approving and adopting school reform plans that include the goal of standards based education. School board members and many parents attend all staff development activities. School teams including school board and school staff members have been formed at each site to address the specific needs of at risk students. In October 1997, three UCAN coalitions SCC, NMC, NMT, participated in a conference on at risk students at Ghost Ranch, N.M. All CENAC school communities participated. The focus was how to use data to support high achievement for all students, especially those "at risk."

Indicators for Santa Clara Day School

Santa Clara Day School is a small, rural elementary school located on the Santa Clara Pueblo Indian Reservation. The student enrollment is 137 in grades k-6. The enrollment has shown a steady increase during the last four years. New facilities and a growing reputation for excellence has attracted students from other pueblos and students who previously attended public or private schools in the area.

A dedicated staff, a proactive board of education, the tribal government, a community and parent constituency that expects and supports excellence in education, have combined forces to provide, encourage and support substantive curriculum reform and the policy, governance and professional development changes and activities necessary to make the reform effort successful and sustainable. Because of the community-based representative nature and policy control of the school board, and the implementation responsibilities of the principal and staff, these entities constitute their most critical unit of change.

UCAN RSI along with other partners such as the Los Alamos and Sandia National Laboratories (LANL & SNL), New Mexico State University (NMSU), and the McCune Foundation ($45,000 grant), has been a major source of support for the Santa Clara Day School's initiative, particularly in the math and science areas. LANL provides assistance in determining the infrastructure needs for the technology services and programs, particularly with regard to computer lab and computers in the classroom. SNL provided 25 sets of computers, monitors and printers to support appropriate technology use plans in the curriculum.

Through UCAN initiated or supported professional development activities, the staff and the larger community is increasing their expertise to modify and implement standard-based curricula in math and science and to begin the dialogue regarding the most appropriate assessment measures to monitor student success.

1. Student Impact: 137 students have been impacted by the curricula reform, policy and procedural changes at the Santa Clara Day School. The newly revised science and math curriculum have been implemented k-6 and the clear emphasis on "hands-on" approaches promotes experiential learning. The new computers from SNL are being integrated throughout the curriculum.

2. Teacher Impact: All k-6 staff (8) are involved in full implementation of the math and science curriculum and support staff (counselor, resource librarian) use approaches and curricula that supports the regular program. National Lab partnerships are being used to support and train teachers in appropriate use of computers in the classroom.

3. Policy Change: The use of Title I funded staff in regular classrooms to lower pupil-teacher ratio as opposed to having a remedial pullout program for low achieving students is a major policy change implemented in the

1996-97 school year. The community believes that the reduction of student/pupil ratios through the assignment of Title I support staff in regular classrooms, will have a positive impact on all curriculum areas, including math and science, as it affords the teaching staff more quality time for teaching. When "hands on" activities in math and science are the vehicle for instruction, having several people in the classroom facilitates individual instruction.

4. Resources Changes: Permission from the BIA to co-mingle the schools Title I, Perkins, and Eisenhower funds has added needed flexibility and support for the reform effort. A major staffing change supported by the school board was the creation of a librarian/technology position. The creation of the technology portion of the position is to provide the support that teachers need to fully utilize the technology equipment and instructional materials that is available. This has had a very positive impact on the schools math and science instruction through increased access to computers in support of course content.

5. Management Change: The establishment of a professional development committee (includes the principal, three teachers and a support staffer) in the fall of 1997-98 school year, assures that staff requests for funds and leave for professional development are in line with the school reform initiatives. The committee also is responsible for developing a "master" professional development calendar and to work with the budget committee and principal to be sure the funds needed for the identified professional development needs are provided for in the school budget. The newly adopted Terra Nova testing system offers a number of student assessment options. The school principal, staff, school board members and parents will be considering the options and will decide which option is best for their students.

6. Data Utilization: Since Santa Clara Day School is state accredited, they use the Iowa Test of Basic Skills at selected levels as the primary evaluation instrument. The school is also using informal pre/post tests in math and science as another indicator of student achievement. In addition, the school principal and the school counselor utilize the data from the Santa Fe Indian School (SFIS) regarding the former Santa Clara Day School Students presently attending SFIS to determine the strengths and weaknesses of their curriculum. Many staff and community surveys and UCAN provided data are used to evaluate progress and needs of the Santa Clara Day School Students.

7a. Standards-based Curriculum: Initial standards/curriculum alignment in math and science has been accomplished and the new curriculum is being implemented in all classes at all grade levels. In both areas, the emphasis is on "hands-on" learning. The alignment was accomplished by the staff working together through professional development activities funded by UCAN.

7b. Hands-on, Inquiry-based Instruction: The school uses FOSS Kits for science instruction and the kit materials from the Center for Hands On Learning further supplements the curriculum. The Saxon Math Program which is the primary math program, engages students individually and in group settings and requires many manipulative and support materials. Professional development occurred throughout the school year and in intensive summer sessions and will continue during the next academic year.

7c. Assessment: In 1995-96 the state testing program specified that students in grades 2, 4 and 6 be tested. The school felt that they needed "exit" scores for their six graders. For 1996-97, the school will be using a newly adopted state test, CTBS Terra Nova. Several assessment options are available with this new tool. The school principal, staff, school board members and parents will be considering the options and will decide which option is best for their students. The Terra Nova assessment tool is aligned with the NM state and national performance standards and contain both normed-referenced and constructed response material. Additionally, the staff has given pretests in mathematics that are contained in the Saxon Program and will post test in the spring. This will give the school the opportunity of measuring the effectiveness of the adopted material. The school staff is considering the development of portfolio assessment in selected grade levels but the specifics have not been agreed on.

7d. Student Support: The partnership with the Santa Fe Indian School has offered Santa Clara Day School students support in the transition to new curricula. A group of SCDS students in grades 4, 5, and 6 and SFIS students work together to learn about the environment of Santa Clara Pueblo as part of an effort to integrate local issues to the science and math curriculum. Visiting scientists from Los Alamos National Laboratory are common on the school campus which gives the students both hands on experiences, role models and a look at career opportunities in the math and science fields.

7e. Use of Environments and Resources Outside of Schools: The partnership with Four Directions, a Challenge Grant, will help the school to ensure that technology is integrated in the curriculum and that it supports the instructional effort. Partnerships with the New Mexico State University and the Smithsonian have supported the school wide enrichment program centered around the Santa Clara Day School Yard Habitat Project. This Digital Desert Library and Seeds of Change Project has Santa Clara Day School on the internet, allowing students and teachers to share their work with schools around the country.

7f. Student-Teacher-Curriculum Interaction: All staff and service providers at the Santa Clara Day School are cognizant of the schools goals and objectives in math and science and their directed services to the students reflect this. Special education classes, student council participants and the gifted and talented children all work toward goals that are directly related to the general curriculum in math and science.

7g. System Environment/Context: The reform agenda at Santa Clara Day School is global as indicated in our Goals 2000 Consolidated Reform Plan. Curriculum alignment with standards is occurring in all disciplines, although, partly due to UCAN support and initiatives, this has been accomplished in science and math. The school is aligning the language arts and social studies with state standards. The broader Santa Clara Day Community including the staff, parents, Santa Clara Tribal Government representatives and the school board members was instrumental in setting the reform agenda through their participation in the "Shades of Change" process conducted the last two years. This document continues to provide the staff and school board with the direction for the reform effort. Curriculum groups, the professional development committee's work and the budget committee's work are all tied to the reform agenda. The local board of education also supports the reform efforts and has approved revised curricula which reflects change and is poised to support other initiatives that will lead to school improvement.

8. Student Performance: Since SCDS is accredited by the State of New Mexico, it has implemented the state adopted Terra Nova Assessment System. Students will be tested in grades 2, 4, and 6 in all academic areas. Additionally, SCDS is considering testing the other grades (K, 1, 3, and 5) with portions of the Terra Nova relating to Reading, Science, and Math. This will offer schoolwide data in these areas. The school counselor, teachers and testing consultants are studying other options and will be recommending standards-based assessments aligned with the new curriculum. The school counselor is working with a school team and consultants at Laguna Pueblo to develop recommendations regarding the school wide testing program for the 1997-98 school year.

9. Partnerships: The school continues to work with the Education Department of the Santa Clara Pueblo Tribe, the Learn and Serve Program and the JTPA Program, the tribe's Environmental Department as well as the tribal police department. Joint planning and proposal writing guarantees sustainability of mutual projects and interest. The school is engaging the broader business community of Espanola in its reform efforts. The desire on the part of the day school is to create a stronger bond with the tribal administration since it is the school's belief that the support of the Santa Clara Tribal Governor and his staff is imperative for successful reform.

10. Unit of Change: In tribal schools, the school governing board as a organizational entity and community representative body, has the essential elements of a "unit of Change". The function of the school board and its educational endeavor is through its powers as the policy maker of the educational system. Each of the drivers such as curriculum, resource convergence, policy, community involvement, student achievement and closing the

gap is in its purview to address. The Santa Clara Tribal Council selects one of its members to be a liaison to the Santa Clara School Board. The Tribal Liaison represents the council at the school board meetings. For the school/community of Santa Clara Day School/Pueblo, the day school's governing board is the entity that makes the necessary educational reform and can sustain the effort. The principal and teaching staff are its implementation arm.

E. Arizona Tribal Coalition - Salt River Pima-Maricopa Indian Community

The Arizona Tribal coalition comprises 20 tribes spread over the state of Arizona. The ATC has 15 focus schools/communities. During the first year of the UCAN RSI the Arizona Tribal Coalition invested heavily in building community support recognizing its importance to the sustainability of the initiative. During the second year the focus turned toward the school, implementation of standards-based curriculum, and professional development of administrators, teachers, and school boards.

The Salt River Pima-Maricopa Indian Community (SRPMIC) in 1995 had a population of 5,704. It is located on a 55,801 acre reservation displaying all the characteristics of a rural reservation community although it is surrounded on its borders by three very affluent communities. The student enrollment for Salt River Elementary School (BIA Grant k-6) is 178. Desert Eagle School (charter 7-12) has 130 students. Students not attending these reservation schools attend Mesa Public Schools being distributed among approximately 10 schools. In the first year of the UCAN RSI, SRPMIC was not officially a target community. It became involved with the initiative by inserting itself in the RSI effort and has continued to respond energetically as its schools have progressed toward math and science reform.

Indicators for the Salt River Pima-Maricopa Indian Community

1. Student Impact: In spring 1995, ASU's Service Learning Project and SRPMIC Education Department entered into an agreement to support tribal schools. University science interns provide the school six hours of in-class science activities and tutoring. In cooperation with the classroom teacher, they develop individual lesson plans for the students with whom they work. The Service Learning Project pilot was implemented in biology at Desert Eagle Alternative High School in spring 1996. At present physical geography and botany are offered to 5th and 6th grade students. ASU committed to turn SRPMIC's elementary school into a full Service Learning School so that every grade will receive math or science enhancement through this association. Math interns provide individualized math to third graders. After school instruction in reading is provided for students from the reservation and the Mesa Public Schools.

2. Teacher Impact: During the last year SRPMIC successfully used the Shades of Change model - a community action model which looks at the past, present and future of schools and communities. More than 150 members of the community and schools have participated in over 32 hours of Shades of Change. A smaller Salt River Community Team has spent many additional days creating the community/school action plan. As a result, Salt River Elementary School has aligned its curriculum to the state and national standards across all content areas. A full week in June 1997 was spent with teachers working with a skilled facilitator to ensure that units of instruction for the first nine weeks of Fall 1997 addressed the standards. A rubric to assess standards was used to evaluate thematic units. Again in a four-day session in October, teachers met with a consultant, reviewed the effectiveness of implemented units and redefined the modified units for the second nine-week session. In February 1997 several teachers and community members received two-day Systemic Change Toolkit Training provided by WestEd.

3. Policy Changes: Arizona has recently adopted science and mathematics standards. Arizona also removed their charter school funding policies that acted in a discriminatory manner against the reservation schools that seek charter status. The Intertribal Council of Arizona and the Reservation School Boards Association with SRPMIC taking a lead role have brought a discrimination suit against the state to return these funds to the reservation schools. These actions will impact every Arizona reservation school that desires or has charter

status. Last year both SRPMIC schools were charter schools - a shift that allowed more localized decision-making and input. This year funding these charter schools issues cost the tribe more than $500,000 and forced Salt River Elementary School to return to BIA grant status.

4. Resource Changes: As the result of ATC's enhanced collaboration with WestEd and SouthWest Comprehensive Center, the Tribal Innovation Program (TIP) provides sustained professional development to tribal schools over a two-year period. Schools participate in a regional institute, two summer institutes and receive six more days of professional development during each of the two years. Each school sends a five-member team comprising two teachers, an administrator, a support person, and a community member. SRPMIC participates as a member of the large Valley of the Sun Cluster. Increased resources from ASU's Service Learning and from NASA AISTEC (American Indian Science Technology and Engineering Consortium) partners have permitted an increase in the number of Service Learning offering at the SRPMIC school. Technical assistance was provided to the Salt River schools to assure that the Service Learning Project was aligned with the national science standards.

5. Management Changes: As is common with many reservation communities, educational leadership is constantly shifting. Until two years ago there was a regular turnover of tribal education directors. Fortunately, the current very capable director has been eager to work with ATC and has capitalized on the resources the coalition provided. The Salt River Education Department has hired a curriculum specialist with a strong science background to work with both schools. She has also been instrumental in developing school to work partnerships to address the particular needs of the secondary level students at Desert Eagle. Formerly, Desert Eagle was an alternative school serving community students who, for a variety of reasons, had been unsuccessful within the off-reservation public school system. In a concerted effort to transform the school into the community's school of choice, Desert Eagle has undergone significant infrastructure changes. A new principal with experience working with at-risk populations was hired in Fall 1997 to provide needed leadership. Both the Tribal Innovation Program and the school-to-work partnerships are providing curricular support. Thus Desert Eagle which previously had no curriculum is now fully developing curriculum to align with state standards.

6. Data Utilization: With ATC guidance and UCAN data feedback system, SRPMIC now recognizes the value of using data to inform their educational decisions. In preparation for the Shades of Change Training involving school and community members, the education department prepared a sobering set of statistics that detailed the low level of attainment of students, the evidence of early drop out, and crime statistics. Communicating this information directly and forcefully to the community helped to provide direction for the community action plan.

7a. Standards-based Curriculum: Teachers, aides and Service Learning teams within the Salt River Schools received training to assure science standards are driving the curriculum. Technical assistance was provided to assure that newly developed academic standards and overall educational plan is systemic, integrated, and meets national standards. In a summer workshop, all teachers were guided through an intensive curriculum evaluation and revision process to ensure alignment with the standards. This training continues through the year as the curriculum is implemented.

7b. Hands-on Inquiry based Instruction: Core to the technical assistance and professional development provided by WestEd, the Southwest Comprehensive Center, and Arizona Assessment Alliance Project is hands-on inquiry-based instruction. During the September Arizona Tribal Coalition Planning Meeting, all participants, including administrators, teachers, aides, school board members, and other community members from Tribal Innovation Program Schools, experienced firsthand a specific hands-on inquiry-based activity. Curriculum developed at Salt River Elementary School targets areas where students explore real solutions to real community problems that they identify.

7c. Assessment: The Valley of the Sun Cluster (10 schools of four tribes) of the Tribal Innovation Program has placed alignment of assessment with standards-based math and science curriculum high on their agenda for the first year's technical assistance. SRPMIC schools shares with many other reservation schools the concern about making assessment relevant. During the Regional Institute a session was devoted to using rubrics for assessment and received the highest evaluation for meeting participant needs.

7d. Student Support: Currently, a Service Learning model is in place at SRPMIC (description in 1, Student Impact, above). This is the first Service Learning Model on a reservation. The program is highly supportive of students providing individual attention to the learning needs of each child. It is especially important because many reservation school teachers are under-prepared and need professional development on standards-based curriculum implementation. This project allows students to receive individualized instruction from university science students while their teachers receive professional development support. Several Desert Eagle High School students, along with their teachers, participated in the six-week 1997 NASA-AISTEC science and technology summer bridge program.

7e. Use of Environments and Resources Outside of Schools: In an effort to provide expanded science opportunities to students, the tribe is developing plans to create a greenhouse in a location near the schools that will permit students to engage in science projects as well as to participate in school-to-work activities. Arizona State University is less than 20 minutes from the schools, and, on a weekly basis, students in the botany class visit the school to engage in science activities. Through the eight different School-to-Work partnerships, Desert Eagle has aggressively sought and gained a multitude of resources outside of the school building.

7f. Student-Teacher-Curriculum Interaction: The standards-based curriculum developed by the teachers this summer and fall focused on units designed to engage students in identifying and solving problems relevant to them and their community. In this sense, the students are having a voice in the direction of their education within the context of meeting state standards. Salt River students who attended the NASA AISTEC Summer Bridge Program also earned credit for a standards-based earth science course.

7g. System Environment/Context: Starting with the Shades of Change, the Salt River Schools have taken the community goals and objectives into the classroom. Using the community inspired goals, teachers developed standards-based, thematic units to reach those goals. Each and every student attending classes at Salt River are being impacted by this new, innovative and standards-based approach to education. The community is being impacted as they observe their vision and mission coming to life in the classrooms. Over six hundred people attended the schools' open house in October, compared to fewer than one hundred people the previous year.

8. Student Performance: The impact of the individualized standards-based science instruction has been marked. Although all classes and all grades have not been tested, at least one class improved from the more usual reservation performance of about 20th percentile to about the 35th percentile after one year of Service Learning. The impact of the standards-based curriculum is too recent to be measurable.

9. Partnerships: Salt River's earliest and strongest partnership has been with ASU's Service Learning Project. While providing much needed student support within the classroom, Service Learning was also able to provide standards-based inquiry professional development for participating teachers and teacher aides as well. In another innovative partnership, InterTribal Council's Environmental Department, Salt River's Environmental, Engineering, and Public Works Departments (3 separate departments), and Desert Eagle are working together to create a Tribal Natural Resource course that will culminate in certification as water technicians for participating students. The pilot program began in 1997. Scottsdale Community College's American Indian Program is also working with Desert Eagle students to develop transition skills from high school to the community college.

10. The primary unit of change is the school/education department/community that serves the Salt River Pima-Maricopa Indian Community. Curriculum that is standards- and community-based has been identified by

this unit through the Shades of Change process and the schools are following up closely to ensure its development and implementation. Because the schools are grant and charter rather than public, adapting state standards for the schools was not mandated. However, the Education Board that governs the schools did pass into policy that the schools adapt the state standards. The Board has also adapted a policy extending preparation and professional development time for teachers. The school has paid teachers this past summer for the week they spent developing standards-based curriculum and units for the fall and again for four days in October. Time is provided weekly for teachers to continue the development of standards-based curriculum that meets the state standards and the community needs. The school TIP team is responsible for setting the direction for the school to achieve full implementation of standards-based math and science curriculum school-wide. The Action Planning Team and the TIP team overlap.

F. Navajo Nation Coalition - Tuba City Schools

The Navajo Nation Coalition (previously CPC) encompasses communities in the Navajo Nation that extend into portions of Arizona, New Mexico and Utah. The Nation covers 16.2 million acres (25,351 square miles). The geographical area is nearly equal in size to Rhode Island, Connecticut, New Jersey and New Hampshire combined.

The NNC service area is 96% Native American, 3.5% Caucasian, 0.1% African American, 0.1% Asian, and 0.3% other. Per capita income is $4,106 with 57.4% of all families living below the poverty level. Of the 92,271 persons 16 years of age and older, 27.9% are unemployed. The 1990 Navajo Nation Census reports that of the 53,264 persons over 3 years of age enrolled in schools, 6.2% are in pre-primary, 82.2% in elementary and high schools and only 11.6% enrolled in college. For the adults over 25, 36.4% have less than a ninth grade education, 22.4% have some 9th-12th grade education but no diploma, 24.2% are high school graduates, 10.4% have some college with no degree, 3.7% have associate degrees, 1.9% have bachelor's degrees and only 1.0% have graduate or professional degrees.

After two years of parallel effort of capacity building within the schools and the Division of Diné Education (DODE), the transition of operations from Northern Arizona University (NAU) to DODE has been completed. The Coalition has prepared itself through the 12 program managers and staff of DODE to align their operations to standards-based educational reform across the Navajo Nation schools. This is the first time that all policy and financial bodies that impact Navajo education are working together on a standards-based, culturally relevant reform effort.

Indicators for the Tuba City Schools

The Tuba City Schools includes public, BIA and grant schools, and are representative of the reform effort. All schools within the city are served by the Navajo Nation Office of NCA, which is collaborating with NNC and had served on the transitional management team.

1. Student Impact: Over 3,680 k-12 students are impacted by the instruction program which is driven by Arizona mandated standards and curriculum.

2. Teacher Impact: More than 40 Tuba City School District teachers, administrators and community members have participated in a strategic planning workshop which provided the impetus for coordination and collaboration among the different schools within Tuba City to attempt the development of K-12 curriculum for science and math. Additional training in the curriculum alignment process was provided for teachers from all the schools within Tuba City. The Tuba City School District is participating in the Tribal Innovation Program (TIP), a collaborative two-year professional development program for improving science and math instruction with WestEd and SWCC; the School District has formed a TIP Team comprised of representatives from all schools within the District.

3. Policy Changes: The Education Committee of the Navajo Nation Council enacted a resolution which mandated priority funding for college students pursuing education in the science and math fields. The Navajo Scholarship Office is implementing a policy to direct a significant portion of the Research and Development Program funds to support students who have declared science and math as their major course of study in college. The Office of Navajo North Central Association (NCA) will develop educational standards for all Navajo Nation schools. A technical assistance task force will be convened in January 1998 to focus on developing Diné Science and Math standards during the first year and then address other content areas the following years. It will be presented to the Education Committee for formal adoption and legislation which will mandate the use of the standards in the Navajo Nation schools. The Arizona State Board of Education recently adopted new science and math standards for the public schools. Assessments based on the new science and math standards will be piloted in the spring of 1998.

4. Resource Changes: Through the Northeastern Arizona Native American School-to-Work Partnership, the schools within the Tuba City community will benefit from a school-to-work grant which the Partnership successfully obtained to implement a school-based, work-based integrated curriculum. In addition the Tuba City schools now have access to Navajo Nation administered programs and resources aligned to UCAN and NNC goals, including the Johnson O'Malley Program, Scholarships for undergraduates and graduate students, Early Childhood Special Education, Head Start resources, Navajo NCA, Teacher Education training, and technical assistance in a range of areas. The Navajo Nation received a five year grant ($1.25 million) from the Annenberg Foundation to implement curriculum improvement (in support of UCAN goals) and school-community relationship in several schools including the Tuba City School District. The coordination of Annenberg with NNC is of primary importance to DODE and facilitates the involvement of additional schools in the reform initiative.

5. Management Changes: The Tuba City School District Governing Board recently reviewed and reassigned administrators within the District structure. The Governing Board actions improved support for teachers and students alike and to improve overall the education program for the District.

6. Data Utilization: Each of the schools in Tuba City have regularly conducted comprehensive assessment and survey of students, teachers, parents and community members regarding various aspects of their schools. With the results of these assessments and surveys, decisions are made about the schools and instruction programs. In addition, the schools within the Tuba City community have used the results of the achievement test data to determine areas for improvement. For example, due to low reading and language scores on tests, the district has targeted reading and language development as focus areas.

7a. Standards-Based Curriculum: Teachers from the Tuba City schools have participated in training provided by WestEd and Education Trust in aligning their curriculum to the national and state science and math standards. Staff development is continuing for teachers in standards-based curriculum and to provide for site-based workshops through UCAN efforts.

7b. Hands-On Inquiry Based Instruction: WestEd, Southwest Comprehensive Center, Education Trust and Diné College have provided professional development activities and technical assistance to teachers and administrators in hands-on, inquiry-based instruction techniques. During the Ba'olta'i Nda'ahintiin Summer Institute, teachers received training in science and math-focused hands-on, inquiry based instruction. Teachers are now applying these new techniques in their classrooms.

7c. Assessment: All of the schools have decided to test students in their respective schools with the Stanford 9 Assessment at 3rd, 8th and 11th grades each Spring. This decision was made in light of the high rate of student transfers which occur among the schools. Before this decision, the public school used ITBS while BIA schools administered CTBS. The Tuba City School District will allow the Tuba City Primary School to undertake the alignment of assessment with standards-based math and science curriculum throughout the school year. Training

was provided addressing use of rubrics for assessment of student learning. Teachers will have further training through workshops planned by the Navajo UCAN-RSI Project.

7d. Student Support: A variety of activities are supported by the schools in Tuba City that include Math/Science Olympiad, Science Bowls, youth leadership programs. Special events such as the Mars Land Rover sponsored by NASA engaged teachers, students and community members in meaningful activities supporting the need for high expectations for students and the schools' curricula. A comprehensive School-to-Work program provides important career exploration and work opportunities to high school students.

7e. Use Of Environment and Resources Outside of Schools: Indian Health Services, the BIA historic landmarks and parks, state programs, NAU, Diné College and the Navajo Nation programs have been accessed to support school programs and to provide educational information classes. Both NAU and Diné College offer college courses for teachers within Tuba City. College faculty also serve as technical resources to the schools.

7f. Student-Teacher-Curriculum Interaction: As a result of training received in curriculum alignment/assessment, and National Standards for Science and Math, teachers have become more sensitive to the learning needs of the students they teach. Information from student surveys are used by teachers to design instructional activities which engage students in identifying and solving problems. The Navajo teachers use Navajo language and culture to enhance instruction.

7g. System Environment/Context: The Tuba City Schools enjoy the support of the Tuba City Chapter and the larger Navajo Nation community. The Governing Boards of the BIA, Public and charter school reflects the community in that all members are Navajo and key school administrators are also Navajo. The Navajo Nation Council has declared the maintenance of the Navajo language and culture as a priority concern, and has issued a charge to the school systems to assist with the effort to teach the Navajo language and to perpetuate the culture.

8. Student Performance: The Tuba City public schools, BIA schools and the Greyhills High School have agreed to use one standardized test. This will be the first time that the schools within the Tuba City community will test their students with one standardized test.

9. Partnerships: The Tuba City Schools have active partnerships with the following entities: (1) Navajo Nation Public School Board Association, Navajo Area School Board Association, and Native American Grant Schools Association. These entities serve to advocate for the educational needs of the students and to lobby county, state and national legislatures; (2) Northern Arizona University, Arizona State University, Coconino Community College, and Diné College. These institutions offer on site college courses and technical assistance for school staff and community members; (3) Northeastern Arizona Native American School-to-Work Partnership. Through this entity, schools within Tuba City can pursue funding and/or access technical resources; (4) The Federally-Impacted Native American School Districts. This national organization is focused on lobbying effort addressing needs for Federal Impact Aid funds which the Navajo Nation public schools rely heavily on; and (5) other state and Navajo Nation government entities.

10. The Unit of Change: The unit of change include the school entities and the community they serve. The Navajo Nation desires a set of unified educational standards and a common k-12 curriculum among all Navajo Nation schools. This will provide a conceptual framework for establishing district level policies affecting education. The framework will include curriculum design, instructional program, student assessment, employment of teachers/administrators/professional support staff, professional development, student support systems, classroom environment, and facilities. Through the UCAN-RSI implementation plan, public awareness and support for the value of science, math and technology in the education of all learners will be increased.

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